

IN THE CLAIMS:

Please amend the claims as indicated in the complete listing of pending claims provided below.

1. (Currently Amended) A method comprising:
receiving input data including a hierarchy of instances of object components; and
performing a database modification process in response to the input data, the database
modification process comprising
finding a database record matching a higher-level component instance within the
hierarchy,
updating the matching database record based on the higher-level component instance,
finding a set of child database records of a database associated with the higher-level
component matching an instance of a component of an object type;,
updating the set of child database records of the database based on a first set of lower-
level component instances within the hierarchy of components of the object
type, the each instances of components of in the first set of lower-level
component instances having a matching record in corresponding to the records
of the set of child database records;, and
inserting new database records in the database corresponding to based on a second set
of lower-level component instances of components of the object type, the
instances of components of in the second set of lower-level component
instances not having matching records of in the set of child database records.
2. (Currently Amended) The method of claim 28 1, wherein the database modification
process further comprises comprising:

deleting records ~~of from~~ the set of child database records, the records deleted ~~related~~
to not having matching components ~~of the object type not included in the~~
instances in the hierarchy of components;
~~wherein the repeating further includes deleting with respect to instances of child~~
~~components of the components.~~

3. (Currently Amended) The method of claim 28 1, ~~further comprising wherein finding~~
the database record matching the higher-level component instance comprises:
extracting a set of userkeys related to the an object type and instances of the higher-
level components instance of the object type;
~~wherein the finding includes~~ utilizing the set of userkeys to find the matching
database record; and
~~wherein the repeating includes extracting a set of userkeys related to the instances of~~
~~child components.~~
4. (Previously Presented) The method of claim 3 wherein:
the finding includes utilizing SQL queries directed to the database.
5. (Currently Amended) The method of claim ~~[[4]]~~ 2 wherein:
the deleting further includes cascaded deleting.
6. (Currently Amended) A method comprising:
receiving input data including an external hierarchy of instances of object
components; and
performing a modification process for a local group of instances of object

components in response to the input data, the modification process comprising

finding, in the local group, a local instance matching a higher-level external instance within the external hierarchy,

updating the local instance based on the higher-level external instance,

finding a set of records of a database child local instances matching an associated with the higher-level external instance of an object type;

updating the set of child local instances of components of the instance based on the a first set of records lower-level external instances within the external hierarchy, the external instances in the first set having matching child local instances in the child of components corresponding to records of the set of records, the instances of components previously present in the object instance;

inserting new local instances into the local group based on a second set of lower-level external instances components in the object instance corresponding to the set of records, the new external instances in the second set not having matching local instances in the set of child local instances of components corresponding to records of the set of records.

7. (Currently Amended) The method of claim 29 6, further comprising wherein the modification process further comprises:

deleting local instances in the set of child local instances, the deleted local instances not having matching external instances in the external hierarchy of components of the instance of the object type which do not correspond to at least one record of the set of records;

wherein the repeating further includes deleting with respect to child components of the components.

8. (Currently Amended) The method of claim 29 6, ~~further comprising wherein finding, in the local group, the local instance matching the higher-level external instance comprises:~~
extracting a set of userkeys related to an object type of the higher-level external
~~instance of the object type and instances of components of the instance of the~~
~~object type; and~~
~~wherein the finding includes~~ utilizing the set of userkeys to find the matching local
instance; and
~~wherein the repeating includes extracting a set of userkeys related to the child~~
~~components.~~
9. Canceled.
10. Canceled.
11. (Currently Amended) An apparatus comprising:
means for receiving input data including an external hierarchy of instances of object
components; and
means for performing a modification process for a local group of instances of object
components in response to the input data, the means for performing the modification process
comprising
means for finding, in the local group, a local instance matching a higher-level
external instance within the external hierarchy,
means for updating the local instance based on the higher-level external instance,

means for finding a set of ~~records of a database~~ child local instances matching an associated with the higher-level external instance of an object type;

means for updating the set of child local instances of components of the instance based on the a first set of records lower-level external instances within the external hierarchy, the external instances in the first set having matching child local instances in the child of components corresponding to records of the set of records, the instances of components previously present in the object instance; and

means for inserting new local instances into the local group based on a second set of lower-level external instances components in the object instance corresponding to the set of records, the new external instances in the second set not having matching local instances in the set of child local instances of components corresponding to records of the set of records; and

~~means for recursively utilizing the means for finding, means for updating and means for inserting with respect to child components of the components.~~

12. (Currently Amended) The apparatus of claim 11 ~~further comprising~~ wherein the means for performing the modification process further comprises:

means for deleting local instances in the set of child local instances, the deleted local instances not having matching external instances in the external hierarchy of components of the instance of the object type which do not correspond to at least one record of the set of records;

~~wherein the repeating further includes deleting with respect to child components of the components.~~

13. (Currently Amended) The apparatus of claim 11 ~~further comprising wherein the~~
means for finding, in the local group, the local instance matching the higher-level
external instance comprises:

means for extracting a set of userkeys related to an object type of the higher-level
external instance of the object type and instances of components of the
instance of the object type; and

~~wherein the finding includes~~ utilizing the set of userkeys to find the matching local
instance; and

~~wherein the repeating includes extracting a set of userkeys related to the child~~
~~components..~~

14. Canceled.

15. Canceled.

16. Canceled.

17. (Currently Amended) A machine-readable medium embodying instructions, the
instructions, when executed by a processor, causing the processor to perform a
method, the method comprising:
receiving input data including a hierarchy of instances of object components; and
performing a database modification process in response to the input data, the database
modification process comprising
finding a database record matching a higher-level component instance within the

hierarchy,

updating the matching database record based on the higher-level component instance,

finding a set of child database records of a database associated with the higher-level

component matching an instance of a component of an object type;

updating the set of child database records of the database based on a first set of lower-

level component instances within the hierarchy of components of the object

type, the each instances of components of in the first set of lower-level

component instances having a matching record in corresponding to the records

of the set of child database records; and

inserting new database records in the database corresponding to based on a second set

of lower-level component instances of components of the object type, the

instances of components of in the second set of lower-level component

instances not having matching records of in the set of child database records.

18. (Currently Amended) The machine readable medium of claim 27, further embodying instructions, which, when executed by the processor, cause the processor to perform the method, wherein the database modification process further comprises comprising: deleting records of from the set of child database records, the records deleted related to not having matching components of the object type not included in the instances in the hierarchy of components;
- wherein the repeating further includes deleting with respect to instances of child components of the components.

19. (Currently Amended) The machine readable medium of claim 27, further embodying

instructions, which, when executed by the processor, cause the processor to perform the method ~~further comprising wherein finding the database record matching the higher-level component instance comprises:~~

extracting a set of userkeys related to ~~the an~~ object type ~~and instances of the higher-level components instance of the object type;~~

~~wherein the finding includes~~ utilizing the set of userkeys to find the matching database record; ~~and~~

~~wherein the repeating includes extracting a set of userkeys related to the instances of child components.~~

20. (Previously Presented) The machine readable medium of claim 19, further embodying instructions, which, when executed by the processor, cause the processor to perform the method wherein:
the finding includes utilizing SQL queries directed to the database.
21. (Previously Presented) The machine readable medium of claim 20, further embodying instructions, which, when executed by the processor, cause the processor to perform the method wherein:
the deleting further includes cascaded deleting.
22. (Currently Amended) A system comprising:
a processor;
a memory coupled to the processor;
an interface coupled to the processor;
wherein the processor is to receive input data including a hierarchy of instances of

object components, and to perform a database modification process in response to the input data, the database modification process is performed by the process to

find a database record matching a higher-level component instance within the hierarchy,

update the matching database record based on the higher-level component instance,

find a set of child database records of a database associated with the higher-level component matching an instance of a component of an object type;

~~the processor also to update the set of child database records of the database based on a first set of lower-level component instances within the hierarchy of components of the object type, the each instances of components of in the first set of lower-level component instances having a matching record in corresponding to the records of the set of child database records;~~ and

~~the processor also to insert new database records in the database corresponding to based on a second set of lower-level component instances of components of the object type, the instances of components of in the second set of lower-level component instances not having matching records of in the set of child database records;~~ and

~~the processor also to recursively repeat the find, update and insert with respect to instances of child components of the components.~~

23. (Currently Amended) The system of claim 22: wherein the processor also further to perform the database modification process to

delete records of from the set of child database records, the records deleted related to not having matching components of the object type not included in the instances in the hierarchy of components; and

~~the processor also to recursively repeat the delete with respect to instances of child components of the components.~~

24. (Currently Amended) The system of claim 22: wherein the processor is to find the database record matching the higher-level component instance by extracting a set of userkeys related to the an object type and instances of the higher-level components instance of the object type; and
~~the processor to utilize~~ing the set of userkeys to find the matching database record;
and
~~the processor to recursively repeat the extract a set of userkeys related to the instances of child components.~~
25. (Currently Amended) The system of claim 24 wherein:
the processor to utilize SQL queries directed to the database for the find.
26. (Currently Amended) The system of claim ~~25~~ 22 wherein:
the processor to cascade delete for the delete.
27. (Currently Amended) The machine readable medium of claim 17, further embodying instructions, which, when executed by the processor, cause the processor to perform the method further comprising:
repeating the finding with respect to lower-level component instances from the hierarchy; and,
repeating updating and inserting with respect to child instances of child the lower-level components instances of the components.

28. (Currently Amended) The method of claim 1, further comprising:
repeating the finding with respect to lower-level component instances from the
hierarchy; and,
repeating updating and inserting with respect to child instances of ~~child~~ the lower-
level components ~~instances of the components.~~
29. (Currently Amended) The method of claim 6, further comprising:
repeating the finding with respect to lower-level external instances from the external
hierarchy; and,
repeating updating and inserting with respect to child instances of the lower-level
external instances ~~components of the components.~~
30. Canceled.
31. Canceled.

New claims:

32. (New) The apparatus of claim 11 further comprising:

means for repeating the finding with respect to lower-level external instances within
the external hierarchy; and

means for repeating updating and inserting with respect to child instances of the

lower-level external instances.

33. (New) The system of claim 22 wherein the processor is further to
repeat the finding with respect to lower-level component instances from the
hierarchy, and
repeat updating and inserting with respect to child instances of the lower-level
components instances.